

Amendments to the Specification:

On page 1, before the first paragraph, please replace the title with the following replacement title:

Measuring instrument

MEASURING ARRANGEMENT WITH A MEASURING INSTRUMENT

On page 1, prior to the first paragraph which begins on line 3, please insert the following:

FIELD OF THE INVENTION

On page 1, prior to the second paragraph which begins on line 7, please insert the following:

BACKGROUND OF THE INVENTION

On page 3, prior to the paragraph which begins on line 11, please insert the following:

SUMMARY OF THE INVENTION

On page 4, prior to the paragraph which begins on line 35, please insert the following:

BRIEF DESCRIPTION OF THE DRAWINGS

On page 5, prior to the paragraph which begins on line 30, please insert the following:

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Please replace the paragraph which appears on page 5, lines 30 to 33, with the following rewritten paragraph:

Fig. 1 illustrates a block diagram of a measuring instrument 2 that [sic] can be connected to a higher-order unit having at least a first and an identical second pair of terminals.

Please replace the paragraph which appears on page 6, lines 4 to 15, with the following rewritten paragraph:

The first and second pair of lines 1, 3 each have a first and a second line 5, 7, 9, 11, each of which is ~~earthed~~ grounded via a capacitor 13. The capacitors 13 are used to filter out interference signals. A current/voltage limiter 14 is connected to the input side of each pair of lines 1, 3. Such a current/voltage limiter protects the measuring instrument against excessively high currents and/or voltages. If the current and voltage are limited to values at which the formation of sparks in the measuring instrument can be ruled out with certainty, the use of the measuring instrument in hazardous areas is possible.

Please replace the paragraph which appears on page 10, lines 31 to 36, with the following rewritten paragraph:

Fig. 2 shows a further exemplary embodiment of a measuring instrument 4 according to the invention. Because of the relatively far-reaching agreement, only the differences from the exemplary embodiment illustrated in Fig. 1 will be described specifically below.

Please replace the paragraph which appears on page 12, lines 29 to 31, with the following rewritten paragraph:

FIGS. 3 to 5 show three different measuring ~~arrangement~~ [sic] arrangements having measuring instruments according to the invention.

Please replace the paragraph which appears on page 12, lines 33 to 37, with the following rewritten paragraph:

Fig. 3 illustrates a measuring arrangement having a higher-order unit 57, to which six conventional 2-wire measuring instruments ~~59~~ 59₁ - 59₆ and two measuring instruments ~~61~~ 61₁ - 61₂ according to the invention are connected.

Please replace the paragraph which begins on page 13, line 1 and ends on line 10, with the following rewritten paragraph:

The higher-order unit 57 is, for example, a programmable logic controller or a distributed control system. In the exemplary embodiment shown, for reasons of clarity it has only 10 identical pairs of terminals, numbered consecutively from ~~1. to 10.~~ 58₁ to 58₁₀. Each pair of terminals is designed as standard for the connection, the supply and the transmission of a measured value in the form of a signal current of a 2-wire measuring instrument.

Please replace the paragraph which begins on page 13, line 12 and ends on line 33, with the following rewritten paragraph:

The higher-order unit 57 has a power supply unit 65 which is connected to a voltage source 63 and via which the individual pairs of terminals ~~1. to 10.~~ 58₁ to 58₁₀ are supplied. Each pair of terminals ~~1. to 10.~~ 58₁ to 58₁₀ is assigned a pick-up unit, which registers a current flowing via a pair of terminals ~~1. to 10.~~ 58₁ to 58₁₀ and generates a signal corresponding to the current and feeds it to an intelligent core 67 of the higher-order unit 57, for example a microprocessor. In the intelligent core 67, all the incoming measured values are monitored and, in accordance with a flow chart stored in the intelligent core 67, display, control, regulating or switching operations are triggered as a function of the instantaneous measured values. This is illustrated symbolically in FIG. 3 by a first output, via which the higher-order unit 57 controls a

valve 69, a second output, via which the higher-order unit 57 controls a switch 71, and a third output, via which the higher-order unit 57 controls a display 73. The display used can of course also be a personal computer, which not only displays a measured value but, for example, can also visualize a process sequence of an entire plant.

Please replace the paragraph which begins on page 13, line 35 and which ends on page 14, line 4, with the following rewritten paragraph:

In the exemplary embodiments illustrated, conventional 2-wire measuring instruments 59 59₁ - 59₆ are connected to the 1st, the 2nd, the 5th, the 8th, the 9th and the 10th pair of terminals. The current flowing in each case via one of these pairs of terminals ~~1., 2., 5., 8., 9., 10.~~ 58₁, 58₂, 58₅, 58₈, 58₉, 58₁₀ corresponds to a measured value from the respective conventional 2-wire measuring instrument 59 59₁ - 59₆.

Please replace the paragraph which begins on page 14, line 6, and which ends on page 14, line 15, with the following rewritten paragraph:

A measuring instrument ~~64~~ 61₁ according to the invention is connected to the two pairs of terminals ~~[[3.]]~~ 58₃ and ~~[[4.]]~~ 58₄, by the first pair of lines 1 being connected to the 3rd pair of terminals and the second pair of lines 3 being connected to the 4th pair of terminals (58₃, 58₉) further measuring instrument ~~64~~ 61₂ according to the invention is connected to the pairs of terminals ~~6. and 7.,~~ 58₆ and 58₇ by its first pair of lines 1 being connected to the 6th pair of terminals and its second pair of lines 3 being connected to the 7th pair of terminals (58₆, 58₇).

Please replace the paragraph which begins on page 14, line 17 and which ends on line 31, with the following rewritten paragraph:

With regard to the electrical connection, the measuring instrument ~~{sic} 64~~ 61₁ - 61₂ according to the invention in no way differ from the conventional 2-wire measuring instruments ~~59~~ 59₁ - 59₆. In each case, one pair of lines is connected to a pair of terminals in the case of all the instruments. In the flow chart in the intelligent core 67 of the higher-order unit 57, it is defined which pair of terminals ~~1. to 10.~~ 58₁ to 58₁₀ is assigned what significance. For example, the fact is stored there that the measured value obtained via the first pair of terminals ~~[[1.]]~~ 58₁ is a level in a specific container. In the flow chart, it is also possible, for example, to define that when a specific level is reached, an outlet valve which responds to an output from the higher-order unit 57 and belongs to this container is to be opened.

Please replace the paragraph beginning on page 14, line 33 and ending on page 15, line 14, with the following rewritten paragraph:

One difference between the conventional 2-wire measuring instruments ~~59~~ 59₁ - 59₆ and the measuring instruments ~~64~~ 61₁ - 61₂ according to the invention resides in the fact that the current flowing via the respective first pairs of lines 1 is a signal current, which represents a measured value which is registered and used by the higher-order unit 57. The supply current flowing via the respective second pair of lines 3 is either ignored completely by the higher-order unit 57, for example by its not appearing at all in the flow chart, or else it can be allocated an alarm function or the like. An alarm function could be configured, for example, in such a way that the higher-order unit 57 triggers an alarm or reports a malfunction if the supply current is greater than the maximum signal current or less than the minimum signal current. In addition, a sequence of actions directed toward safety can be provided in the flow chart for the eventuality of a malfunction of the measuring instrument.

Please replace the paragraph beginning on page 15, line 16 to line 34, with the following rewritten paragraph:

Fig. 4 shows a further exemplary embodiment of a measuring arrangement having at least one measuring instrument 61 according to the invention. The significant difference from the measuring arrangement illustrated in Fig. 3 consists in that the higher-order unit 75 of Fig. 4 comprises a control and/or regulating unit 77, for example a programmable logic controller (PLC) or a distributed control system (DCS), and a battery, arranged physically separately from the latter, of series - connected transmitter feed units 79_{1-79_x} . The battery is supplied via a power supply unit 83 connected to a voltage source 81. Each transmitter feed unit 79_{1-79_x} has a pair of terminals for a 2-wire measuring instrument. In order that a measuring instrument according to the invention can be connected, the battery must have at least two transmitter feed units 79. However, it is usual for such batteries to have considerably more than two, for example 10 or 64, transmitter feed units.

Please replace the paragraph which beginning on page 15, line 36 and ending on page 16, line 11, with the following rewritten paragraph:

Each transmitter feed unit 79_{1-79_x} can be connected via its pair of terminals to a measuring instrument, it feeds the measuring instrument, registers a current flowing via the pair of lines connected to its pair of terminals and, via a signal line 85_{1-85_x} , outputs a signal to the control and/or regulating unit 77 corresponding to the current. In this exemplary embodiment, too, a number of identical pairs of terminals is therefore provided and, for the connection of conventional 2-wire measuring instruments 59 and measuring instruments 61 according to the invention, that which is said previously in conjunction with the exemplary embodiment illustrated in Fig. 3 applies.